Smart Key Programmer

User's Manual

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Trademarks

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1. Foreword

The Smart Key Programmer set is composed by the Smart Key Programmer itself, and a driving program that runs on a computer, under the Windows operative system. The software is supplied on a self-installing CD.

The figures shown in this manual may differ from those displayed by your computer, depening on Windows operative system version and settings.

1.1 Conventions

Click means clicking the left mouse button, with the cursor on the choice to be selected.
Right-click means clicking the right mouse button.

In this manual, the choices to be clicked are written *in this* font
In this manual, the messages the software is issuing will be written `in this` font.

1.2 Copy-Protection

The software is copy protected. After a successful installation, the hardware is mated with the computer hard disk, and cannot be used on other machines. If you change PCs, please return the hardware to be restored as new, ready to be mated to an other hard disk.

So, do not try to install this software on a computer, knowing that the definitive computer you will be using is another one.

2 Installation

WARNING !!!

Do not connect hardware before having successfully installed the software !

There are 2 versions of this product, to suit the majority of computers:

- **SKP-USB**
  The computer uses the USB connection to talk with the Programmer. The supplied components are:

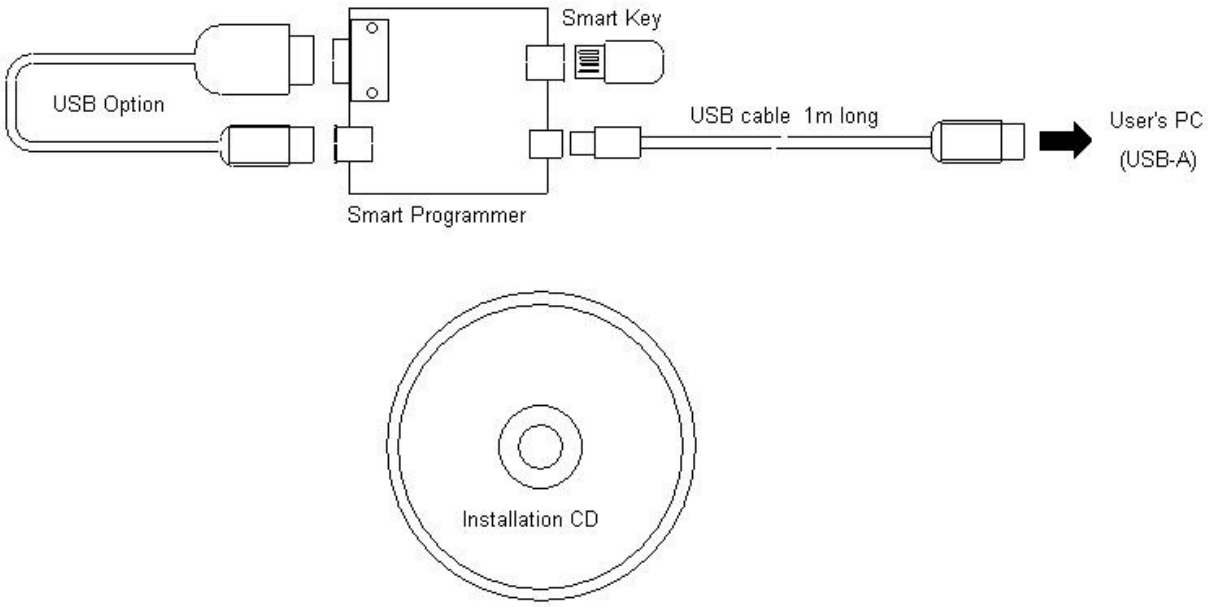

Fig. 1 – USB Option

- **SKP-SERIAL**
  The computer uses the serial port (typically COM1) to talk with the Programmer. The supplied components are:

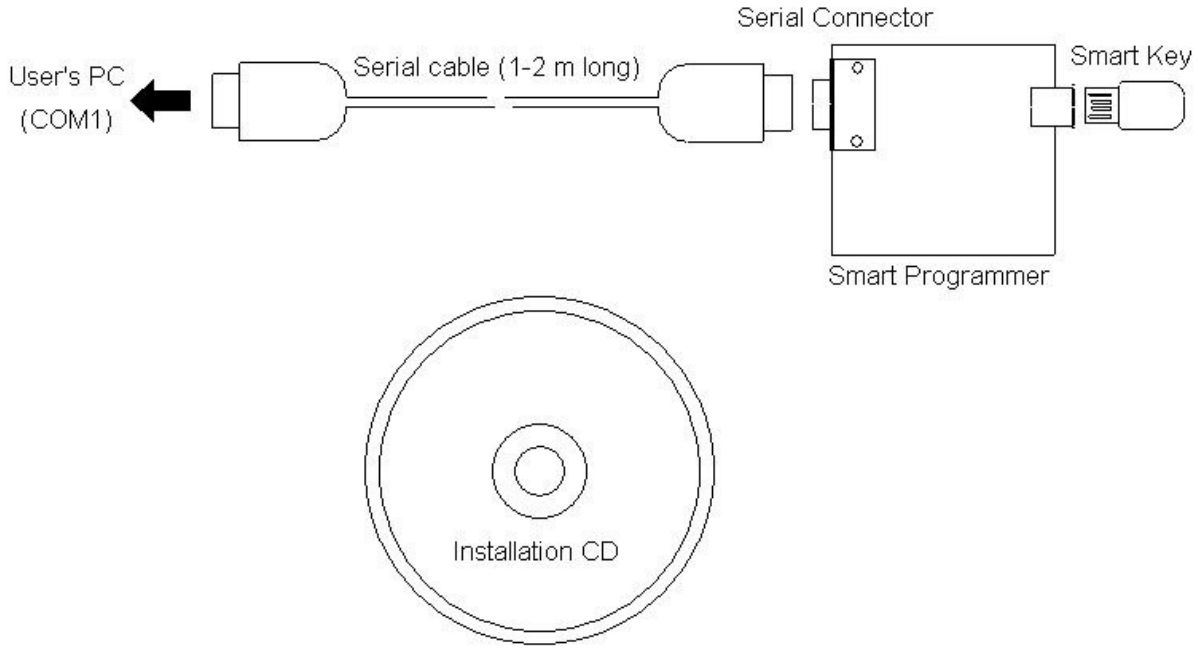

Fig. 2 – Serial Option

2.1 Software installation

WARNING !!!

Do not connect hardware before having successfully installed the software !

Insert the supplied Installation CD into your computer. The installation procedure will automatically start.
(If it does not start after a while, go to 'My Computer', then go to 'CD Drive', locate the file 'Index.htm' and double clik on it).
The following screen will be displayed (actual image may differ slightly, depending on Windows version and settings):

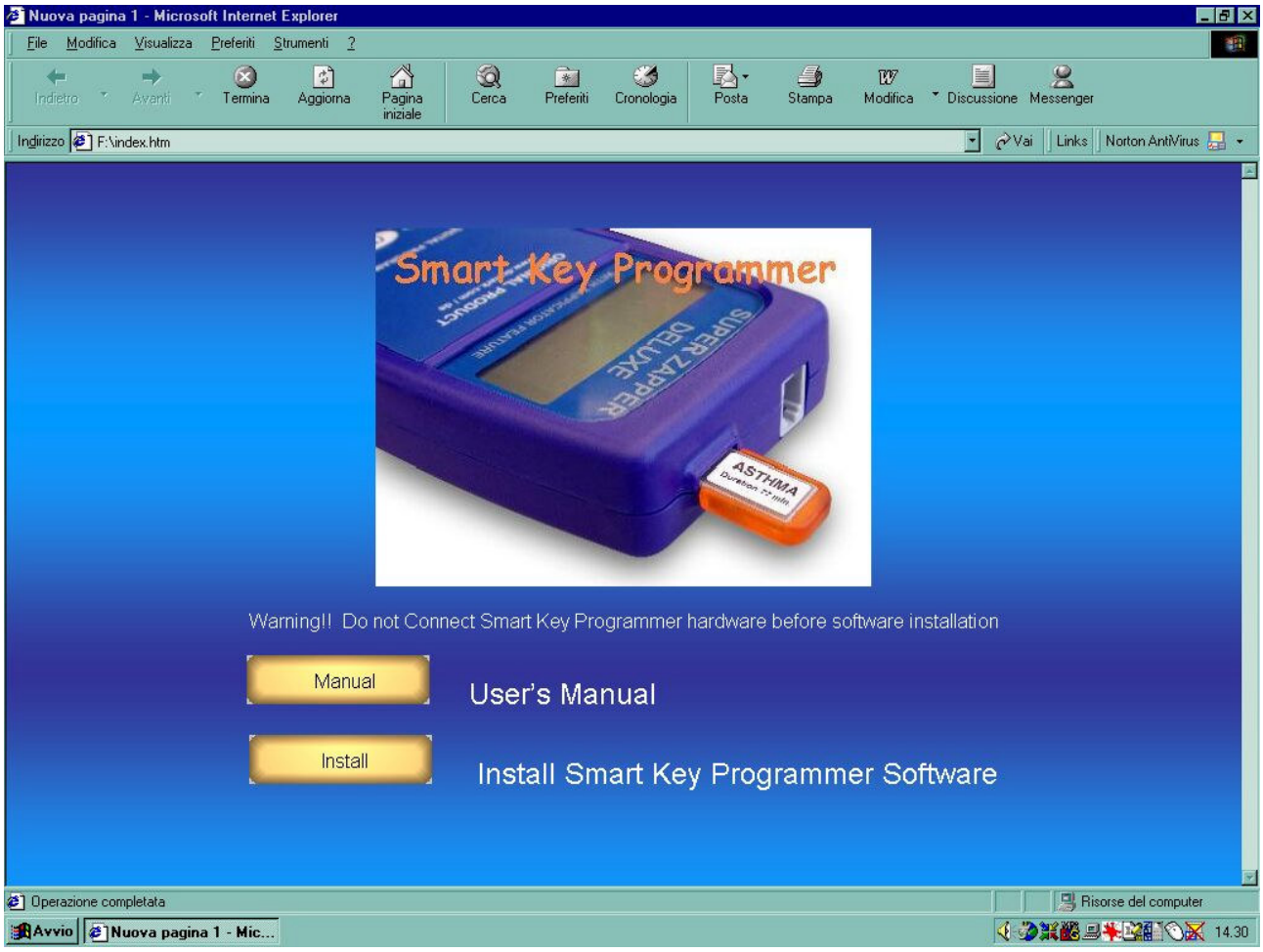
Nuova pagina 1 - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Avanti Termina Aggiorna Pagina iniziale Cerca Preferiti Cronologia Posta Stampa Modifica Discussione Messenger
Indirizzo F:\index.htm
Vai Links Norton AntiVirus
Smart Key Programmer
SUPER ZAPPER DELUXE
ASTHMA
Warning!! Do not Connect Smart Key Programmer hardware before software installation
Manual
User's Manual
Install
Install Smart Key Programmer Software
Operazione completata
Risorse del computer
Avvio
Nuova pagina 1 - Mic...
14.30

Fig. 3 – Software installation, main menu

The *Manual* button brings you in a menu where you can install the program required to display and print this manual (Adobe Acrobat Reader), and preview the manual

The *Install* button brings you in a menu where you install the driver for the USB-to-serial-port converter and install the Smart Key Programmer software.

2.1.1 User's Manual

This manual is supplied in the Adobe Acrobat Reader (.pdf) format.
In order to be able to display on your screen any .pdf file (this manual included) and eventually print it, you must have the Adobe Acrobat Reader software installed on your computer.
You may have this software already installed (check the icons on your desktop), in this case you do not need to re-install it (unless you have an older version and you want to upgrade it).
Clicking on the *Manual* button in Fig. 3, the following screen will be displayed:

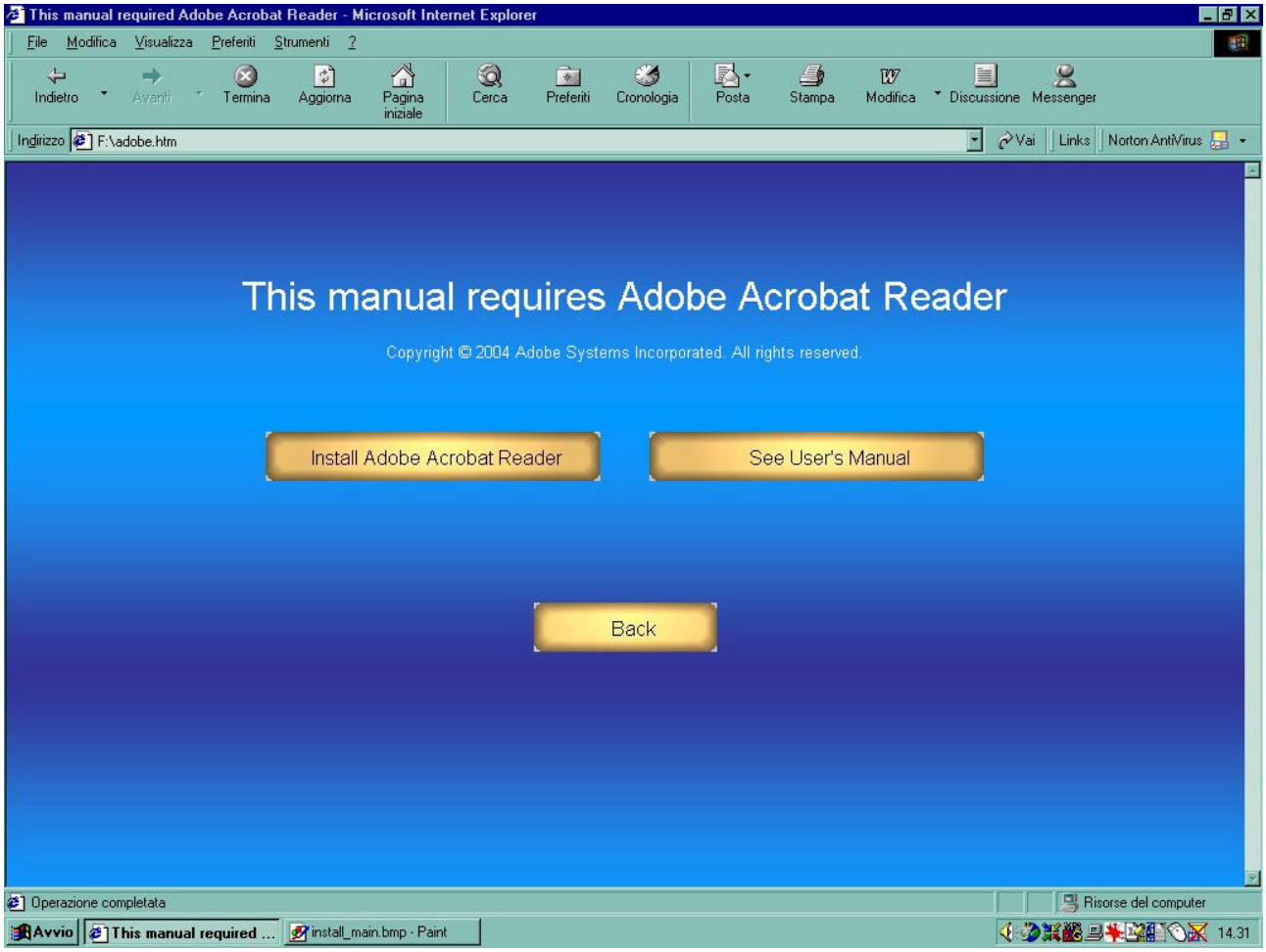
This manual required Adobe Acrobat Reader - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Avanti Termina Aggiorna Pagina iniziale Cerca Preferiti Cronologia Posta Stampa Modifica Discussione Messenger
Indirizzo F:\adobe.htm
Vai Links Norton AntiVirus
This manual requires Adobe Acrobat Reader
Copyright © 2004 Adobe Systems Incorporated. All rights reserved.
Install Adobe Acrobat Reader
See User's Manual
Back
Operazione completata
Risorse del computer
Avvio
This manual required ...
install_main.bmp - Paint
14.31

Fig. 4 – Manual–related menu

- **Install Adobe Acrobat Reader** – click on this to install the software needed to view and print this manual (as well as all .pdf files). You must click this choice if you do not have this software already installed in your computer.
  Assuming you have clicked this choice, the Windows operative system will display a warning (the actual screen image depends heavily on Windows version) saying that you are going to download the file `AcroReader505_UK.exe` from `D:\` . If present, click on *Run application from current position*, then click the *OK* (or the *Open*) button. Follow the instruction supplied by the installation procedure.
- **See User's Manual** – click on this to preview this manual. The software will open the Adobe Acrobat Reader, and the Reader will in turn display this manual. You can browse the manual, as well as print it (clicking on the printer icon), When you have finished with the manual, click the Back button of your browser to return to the Fig. 4 – Manual–related menu.
- **Back** – click on this to return to the Installation main menu (Fig. 3). You may prefer to return clicking on the back button of your browser.

2.1.2 Install Smart Key Programmer software

All users must install the software, but those with the USB Option must install the driver before

Clicking on the *Install* button in Fig. 3, the following screen will be displayed:

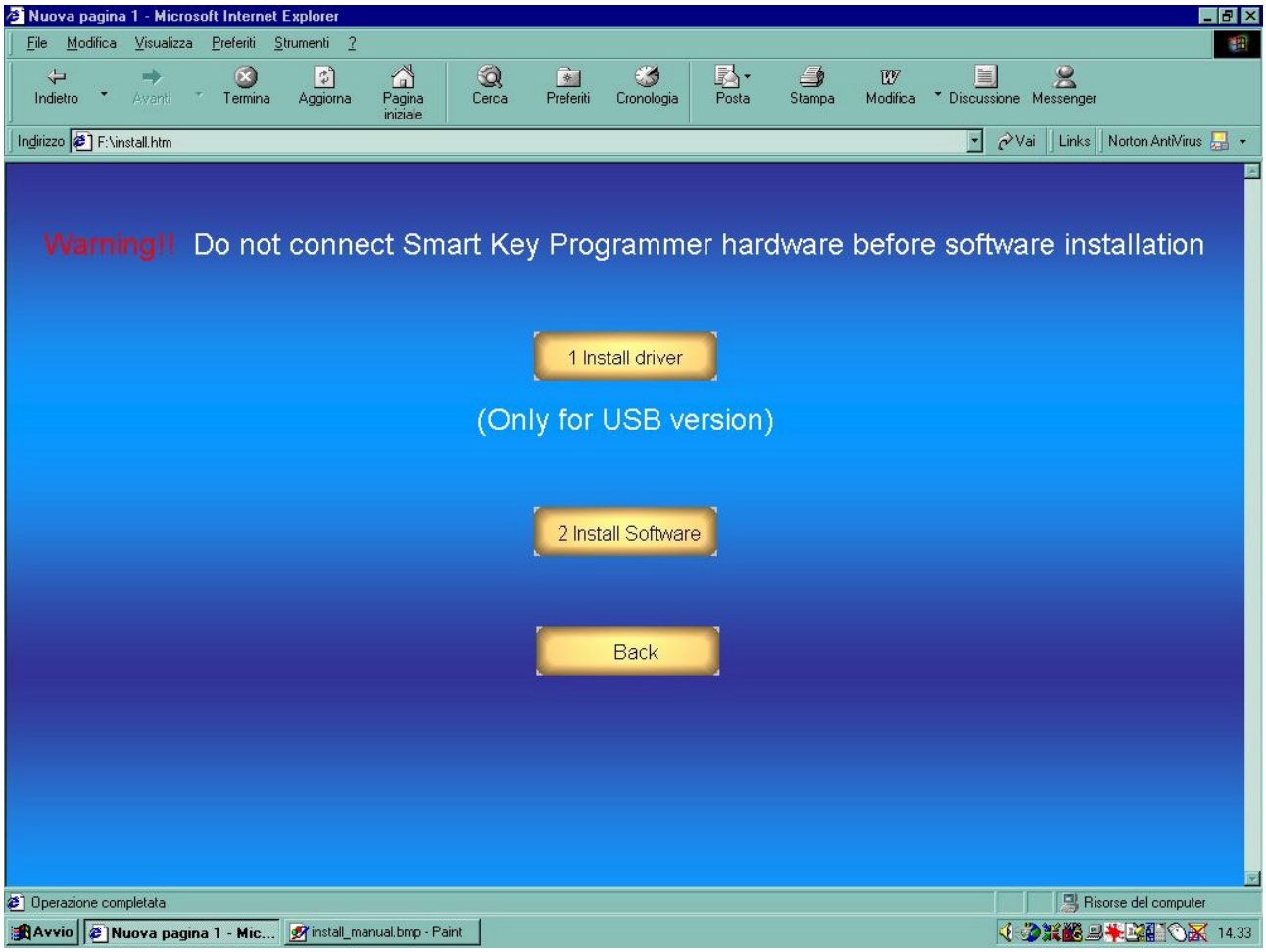
Nuova pagina 1 - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Avanti Termina Aggiorna Pagina iniziale Cerca Preferiti Cronologia Posta Stampa Modifica Discussione Messenger
Indirizzo F:\install.htm
Vai Links Norton AntiVirus
Warning!! Do not connect Smart Key Programmer hardware before software installation
1 Install driver
(Only for USB version)
2 Install Software
Back
Operazione completata
Risorse del computer
Avvio
Nuova pagina 1 - Mic...
install_manual.bmp - Paint
14.33

Fig. 5 – Install Software Menu

- **1 Install Driver** – click on this to install the USB-to-Serial-Port Driver. Users with the USB Option (Fig. 1) must click here, instead users with the Serial Option must not install the Driver, and go directly to the next button.
  Assuming you have clicked this choice, the Windows operative system will display a warning (the actual screen image depends heavily on Windows version) saying that you are going to download the file `PL-23-3 Driver Installer.exe` from `D:\` . If present, click on *Run application from current position*, then click the *OK* (or the *Open*) button. Sometime, Windows will tell you that
  ```
  Author cannot be determined because of the following problems:
  Authenticode digital signature not found
  ```
  Disregard this message clicking on the *OK* button, and follow the instruction supplied by the installation procedure.
- **Install Software** – click on this to install the Smart Key Programmer software
  Assuming you have clicked this choice, the Windows operative system will display a warning (the actual screen image depends heavily on Windows version) saying that you are going to download the file `Setup.exe` from `D:\SmartProg` . If present, click on *Run application from current position*, then click the *OK* (or the *Open*) button. Sometime, Windows will tell you that
  ```
  Author cannot be determined because of the following problems:
  Authenticode digital signature not found
  ```
  Disregard this message clicking on the *OK* button, and follow the instruction supplied by the installation procedure, that will install the software and the desktop icon needed to start the Smart Key Programmer software and view (and print) this manual.

During the installation, the software displays the following screen:

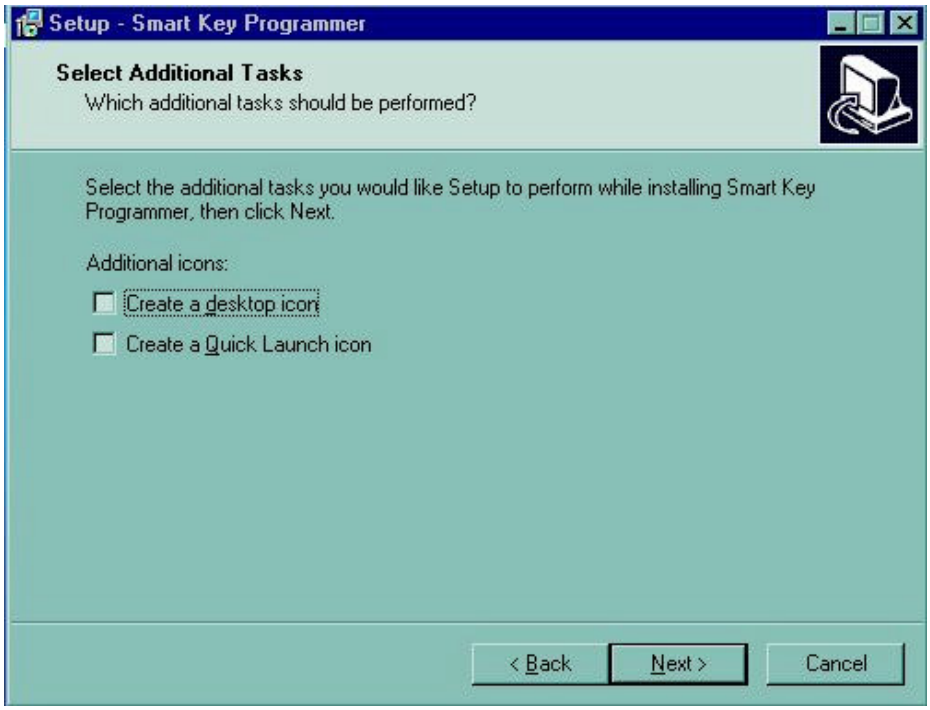
Setup - Smart Key Programmer
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing Smart Key Programmer, then click Next.
Additional icons:
Create a desktop icon
Create a Quick Launch icon
< Back
Next >
Cancel

Fig. 6 – Desktop icon selection

Check if there is a check mark ✓ in the square before the *Create a desktop icon* button. If not present, click on the button in order to display the check mark, then click on the *Next* button.
When the software installation is successfully completed, you will be returned to the Install Software Menu (Fig. 5).
Exit the browser clicking on *File Exit* (or on the *X* button in the upper right screen corner – in the standard Windows way).
Extract the installation CD from the drive.
Before running the software for the 1st time, connect the hardware, as shown in Fig. 1 and 2 above.

- **Back** – click on this to return to the Installation main menu (Fig. 3). You may prefer to return clicking on the back button of your browser.

-

2.2 Serial port selection

Be sure to have properly connected the Smart Key Programmer to your computer, as shown in Fig. 1 and 2.

Double click on the Smart Key Programmer icon on the desktop to start the Smart Key Programmer software.
When running the program for the 1st time on a brand-new hardware, or every time the software starts but does not talk properly with the Smart Key Programmer hardware, the following screen will be displayed:

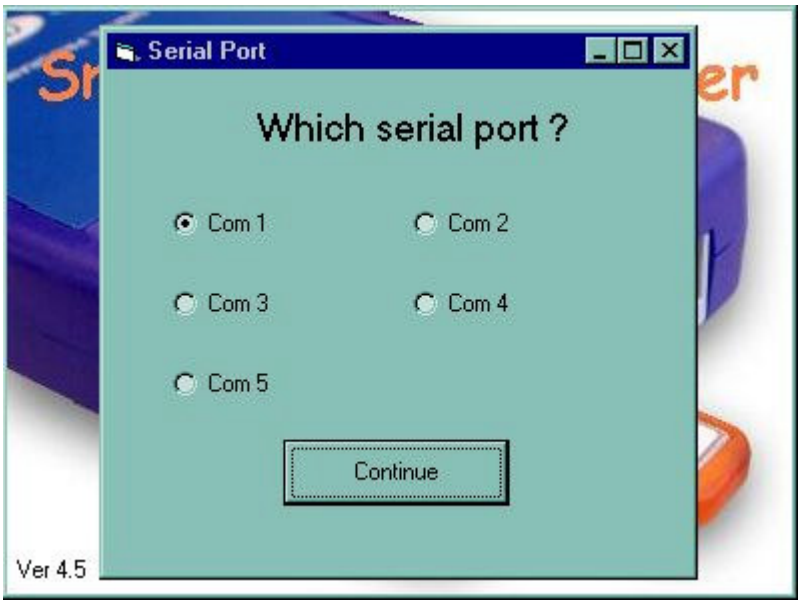

Fig. 7 – Serial Port Selection

Click on the button near the serial port you are using.

- Users of the USB Option must click only on *COM5*, but sometimes need to select *COM3*. (You can see which port is used going to Start, Settings, Control Panel, System, Hardware, Peripherals, Ports, then check for something like `COM5 port on USB`)
- Users of the Serial Option must click on the serial port in which they have connected the serial cable – usually *COM1* (You can check the symbols near the connector on the computer back side)

Click on the *Continue* button.
If the computer properly talks with the Smart Key Programmer, the software will continue.
If not, it will display the warning `Error – Programmer not responding` Click on the OK button.
Check the connection, then rerun the software, eventually trying another port.
Sometime, users of the USB option need to unconnect the USB cable from the computer, wait some seconds, then reconnect and rerun the Smart Key Programmer software.

2.3 Copy-Protection Activation

When running the program for the 1st time on a brand-new hardware, the copy protection system will be activated. The software will display the following warning

Fig. 8 – Intro screen and copy protection activation

Clicking on *Yes* will activate the copy-protection and the hardware will then be usable only with that computer.
The normal use of the program will then start – see the 'Starting the software" chapter.

Clicking on *No* will abort the program, and the hardware can be re-installed on whatever computer. The software will display a warning "`Wrong programmer serial id`": click on the *OK* button to exit.

3 Starting the software

Click on the desktop icon *Smart Key Programmer*.
The software will display an intro screen with the picture of a Zapper with a Smart Key inserted (as in Fig. 8 above - please notice in the lower left corner the software version), then will display the following window:

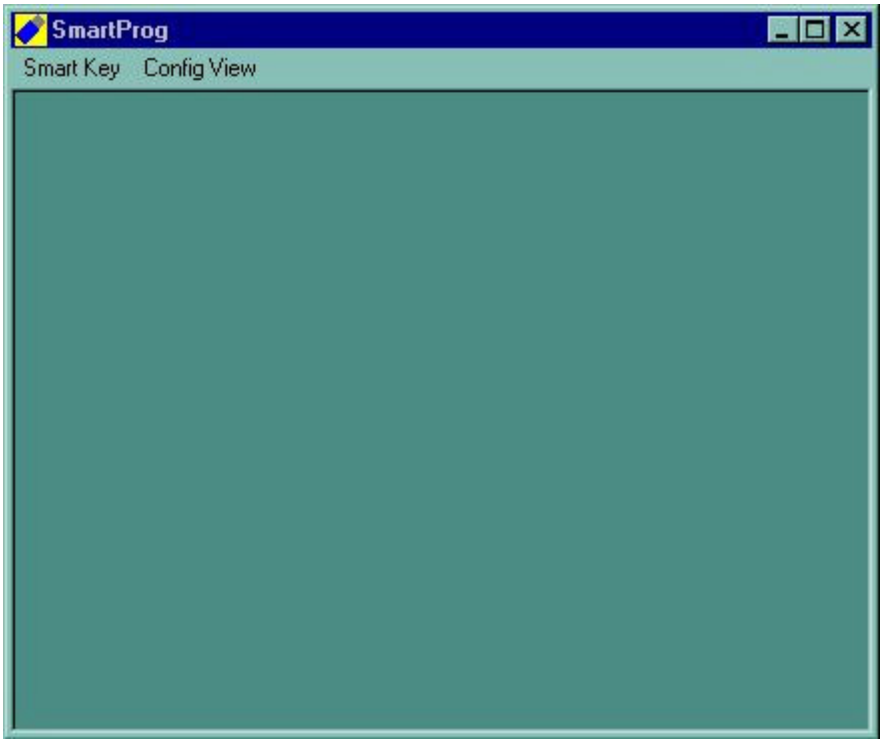

Fig. 9 – Main window

The menu choices are:

- Smart Key
  This is the normal use of the device. Click on this to start working with the keys.
- Config View
  This is a hardware configuration verification option. Normally, there is no need to click on this.

Click on what you want to activate – normally *Smart Key*

4 Smart Key Menu

This menu contains all the operations needed to define a Smart Key (Program Driver) program, to save it into a Smart Key, to save it in a computer file, to reload it from a computer file, to inspect and modify it, and to print it on paper. The last choice closes the program.

The following sub-menu will be displayed:

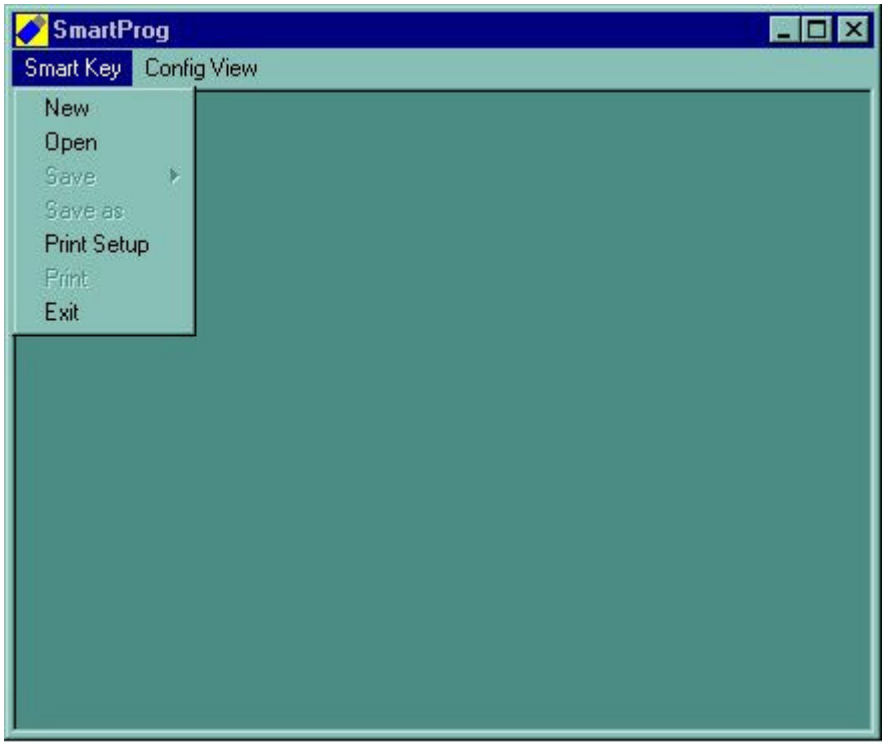

Fig. 10 – Smart Key Menu

Some choices, as in the above picture, may be gray. They are activated (and will thus be displayed in black) when a Smart Key program is defined, as explained below.

- New
  Click on this to define a new Smart Key Program. The program may then be saved into a file and into whatever number of key the user wants (see "Save")
- Open
  Click on this to load an already defined Smart Key Program from a file. The program may then be inspected, stored into keys, modified, printed at user's will
- Save
  Click on this to store the Smart Key Program into a file and/or into a Smart Key.
- Save as
  Click on this to store the Smart Key Program into a computer file under a file name of your choice
- Print Setup
  Click on this to configure the printer. The software will call the Windows Printer Settings window, enabling to choose among several printer, if available in the user's installation, set paper orientation and other properties, depending on the chosen printer
- Print
  Click on this to print the Smart Key Program on paper. This may be useful for your documentation. The software will call the standard Windows Printing Service to do this job
- Exit
  Click on this to exit the software. Alternatively, you can exit the software in the other standard Windows way, i.e. by clicking on the 'X' icon in the upper right corner of the software window.

4.1 Smart Key Program

Each Smart Key Program consists of from 1 to 16 program steps.
Each step defines:

- A Min and a Max frequency. The zapper will sweep between these two as defined below. If you want a static (unsweeped) frequency, enter the same frequency under Min and Max.
- the time the frequency is emitted
- a pause time (no output voltage) before the next step
- the sweep time between the Min and Max frequency
- the output voltage level

4.2 New

Click on this to define a new Smart Key Program.
The following screen will be displayed:

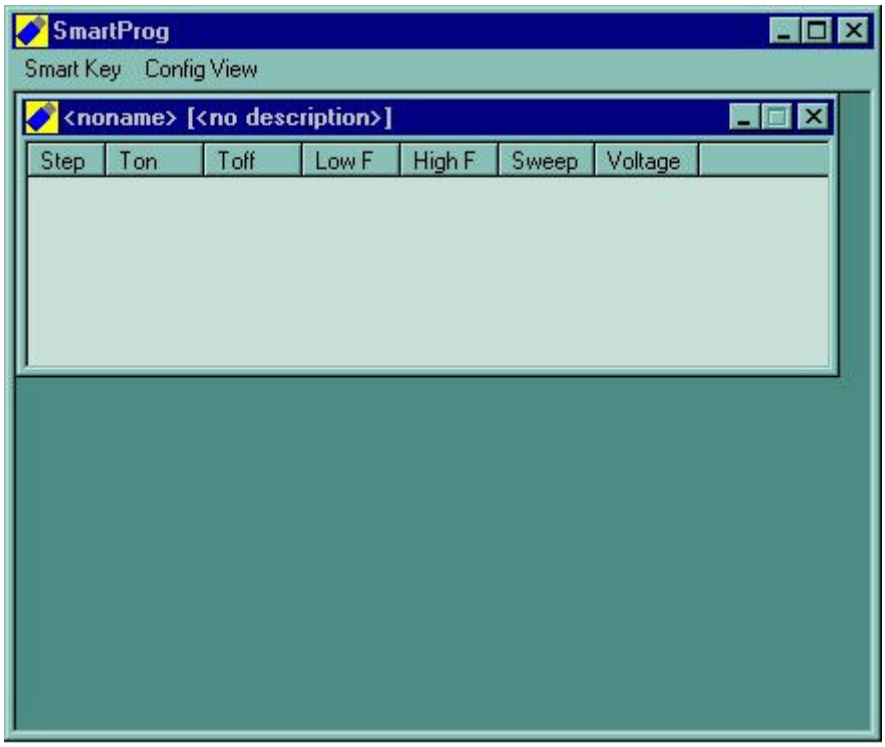

Fig. 11 – Smart Key Program Window – no program defined

The title bar ("<noname>[<no description>]") contains the program name and a brief description.

The "Step" column contains the step number.

The "Ton" column contains the time during which there is voltage on output, in seconds.

The "Toff" column contains the pause time (no output) before the next step, in seconds.

The "Low F" column contains the lower frequency in the step, in KHz.

The "High F" column contains the upper frequency in the step, in KHz. When Low F and High F are equal, there is no sweep, and a static frequency will be output

The "Sweep" column contains the time it takes to the frequency to increase from LowF to High F, then return back to Low F, in seconds.

The "Voltage" column contains the output voltage, in V.

Each column size may be varied in the standard Windows way (normally, there is no need to change the column size).

4.3 Step editing sub-menu

Place the cursor in the white area under the column headings then right-click (i.e. click with the right mouse key). The following sub-menu will be displayed:

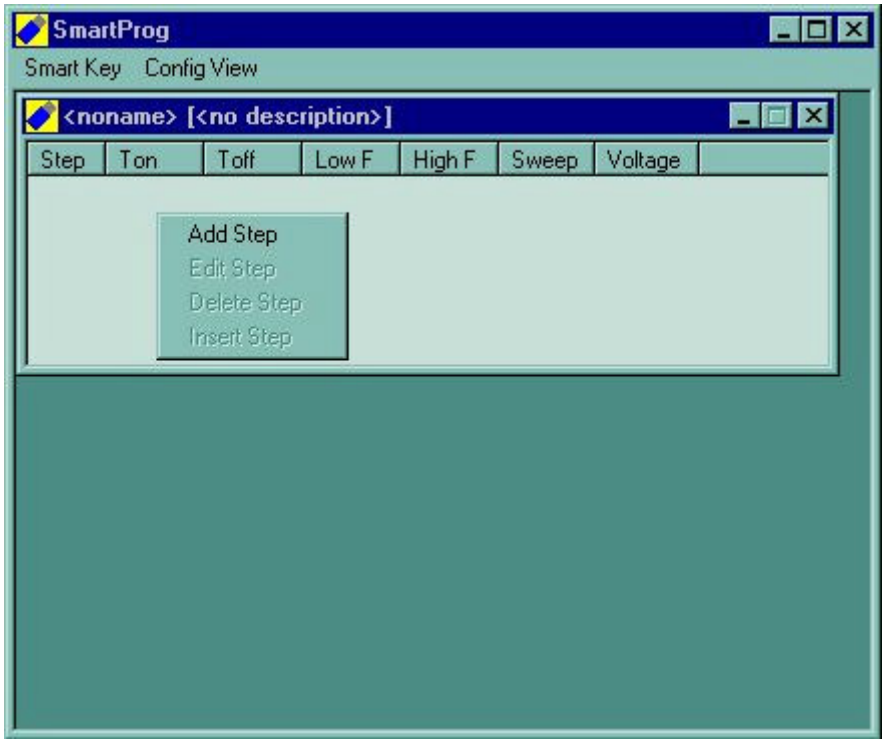

Fig. 12 – Step Editing sub-menu

(Some choice may be gray, the software will display them in black when they will be available – when there are some steps in the program!)

- Add Step
  Click on this to add a new step after the last one, if any
- Edit Step
  Click on a step number to highlight it, then right-click to display this menu, then click on Edit Step to modify the step
- Delete Step
  Click on a step number to highlight it, then right-click to display this menu, then click on Delete Step to delete the step – WARNING: the step will be definitively deleted without requesting any confirmation.
- Insert Step
  Click on a the step number before which the new step is to be inserted – the software will highlight it -, then right-click to display this menu, then click on Insert Step to insert a new step. The new step will be inserted between the highlighted one and its previous.

4.4 Defining some steps

Let's define a simple Smart Key Program to show how operate.

Click on the *Add Step* choice.
The Step Definition Window will be displayed:

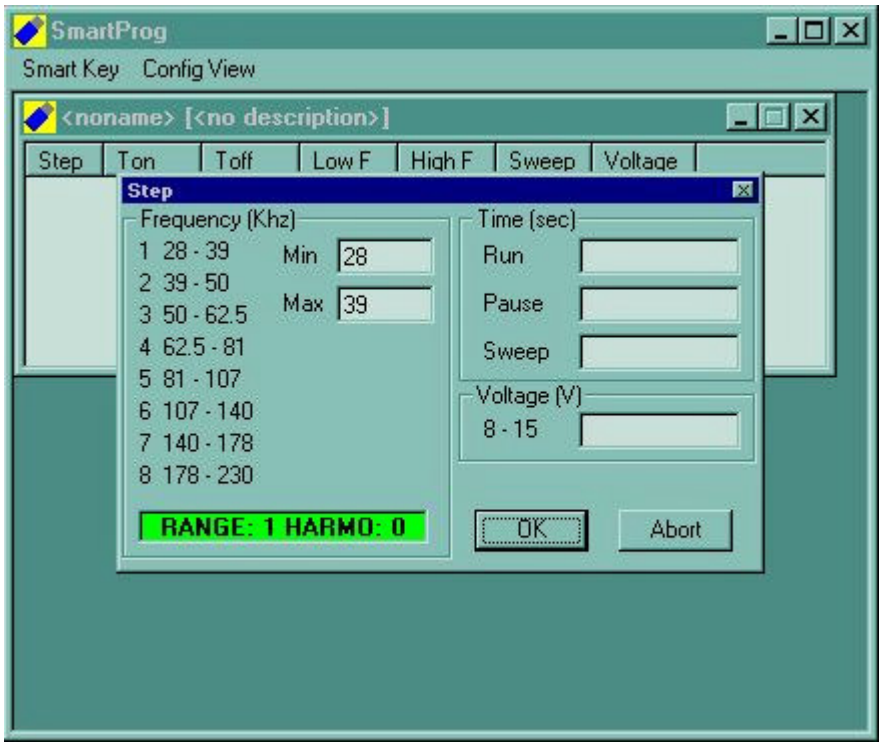

Fig. 13 – Step Definition Window

The "Min" field contains the lower frequency in the step, and the "Max" field contains the upper frequency, in KHz. The software will preload these fields with the limit of the 1st frequency range. You can write into these fields the lower and upped frequency you want for the step, providing that:

- the "Max" frequency is greater or equal the "Min" frequency, and
- both frequencies are in the same range (i.e. you can select 28 as Min and 39 as Max, because both are in the 1st range, but you cannot select 28 as Min and 45 as Max, because 45 is within the 2nd range)
  The 8 frequency ranges that are available to the zapper are displayed on the left.

The "Run" field is for the duration in which there is output from the Zapper, in seconds

The "Pause" field is for the subsequent pause time (no output from the Zapper), in seconds

The "Sweep" field is for the time it takes to vary the frequency from Min to Max and back to Min, in seconds. It will be preloaded with 0 when Min = Max.

The "Voltage" field is for the voltage level, in V. You can choose a value between 8 and 15, inclusive.

To write into a field, place the cursor over it, click, delete the previous value using the Backspace key, then type the value, in the standard Windows way.

Let's try to define a step with Min = 145 KHz, Max = 160 KHz, Run time = 60 s, Pause time = 120 s, Sweep time = 10 s, Voltage = 10 V.

Start placing the cursor in the Min field, click on it, Backspace or Delete key (on the keyboard) to delete the '28', then type 145. Press the Tab key to advance to the Max field. Notice that the green field on the bottom left will turn red, because the Min frequency is greater than the Max. We will correct this error (and this field will return green) when entering the required value for the Max field.

When we have filled all fields, and we are satisfied with the value in them, click on the *OK* button. The software will return in the previously described screen, with a row containing the step data just entered.

Let's continue defining 2 other steps, step 2 having Min = 30 KHz, Max = 30 KHz, Run time = 10 s, Pause time = 1 s, no need to enter Sweep time because Min=Max, Voltage = 15 V; and step 3 having Min = 110 KHz, Max = 120 KHz, Run time = 45 s, Pause time = 300 s, Sweep time = 45 s, Voltage = 12 V

Start placing the cursor in the white area, right-click to open the Step editing sub-menu, then click on *Add Step*. Fill the window with the step #2 data, then repeat for the step #3. While entering steps, notice that the choices in the Step Editing sub-menu are now all available.

We will end with a program like the one in the figure below:

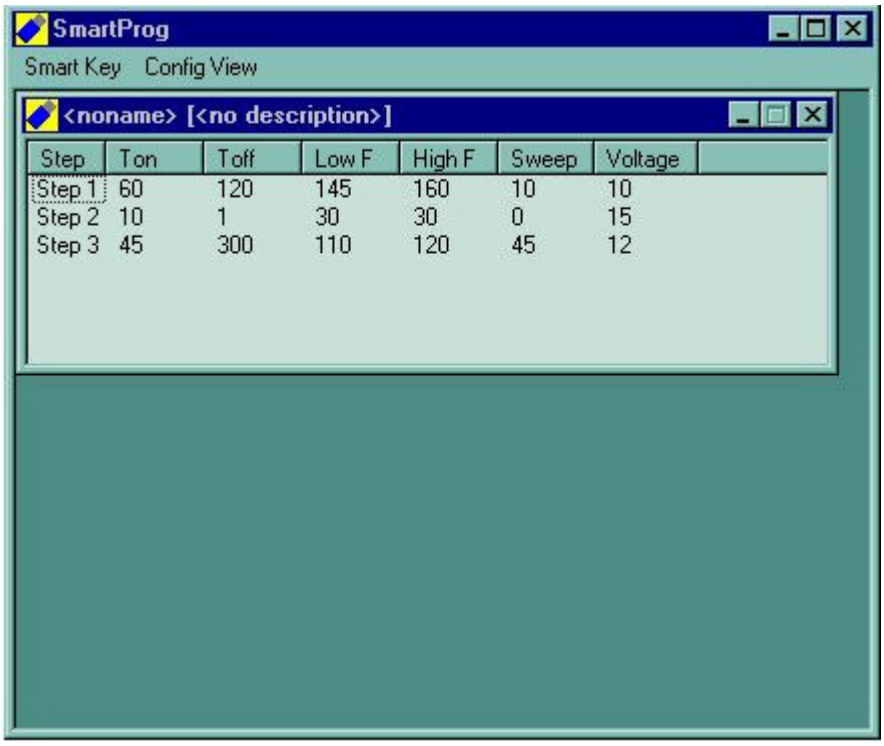

Fig. 14 – Smart Key Program Window with a 3 step program defined

All input fields have some protections against typing incorrect values, for example, if trying to specify 200 KHz as Max frequency in step #3:

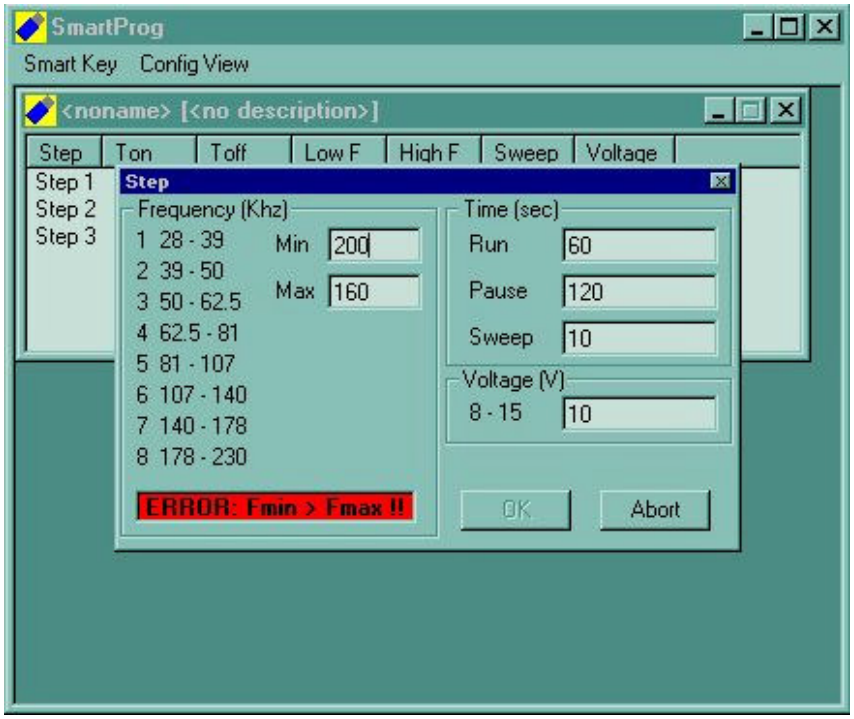

Fig. 15 – Step Definition Window showing an error

(to try the above figure, click on step #3 to highlight it, right-click to display the Step editing sub-menu, click on *Edit Step*, click in the *Max* field, delete 120 and replace it with 200 … click on abort to let the step as with the correct values).

4.5 Modifying a Step

You can modify a step as follows:

- in the Smart Key Program Window (Fig. 14), click on the step number of the step to be modified. The software will highlight it.
- Right-click to display the step editing sub-menu, then click on *Edit Step*. The Step Definition Window will open, showing the step data.
- Change the step data as you want. When satisfied with the changes, click on the *OK* button, or click on the *Abort* button to undo the changes restoring the original data.

4.6 Deleting a Step

You can delete a step as follows:

- in the Smart Key Program Window, click on the step number of the step to be modified. The software will highlight it.
- Right-click to display the step editing sub-menu, then click on *Delete Step*. The highlighted step (step #2 in the figure below) will be deleted. Please note that the software does not prompt for verification, it simply deletes the step without possibility to restore the deleted data.

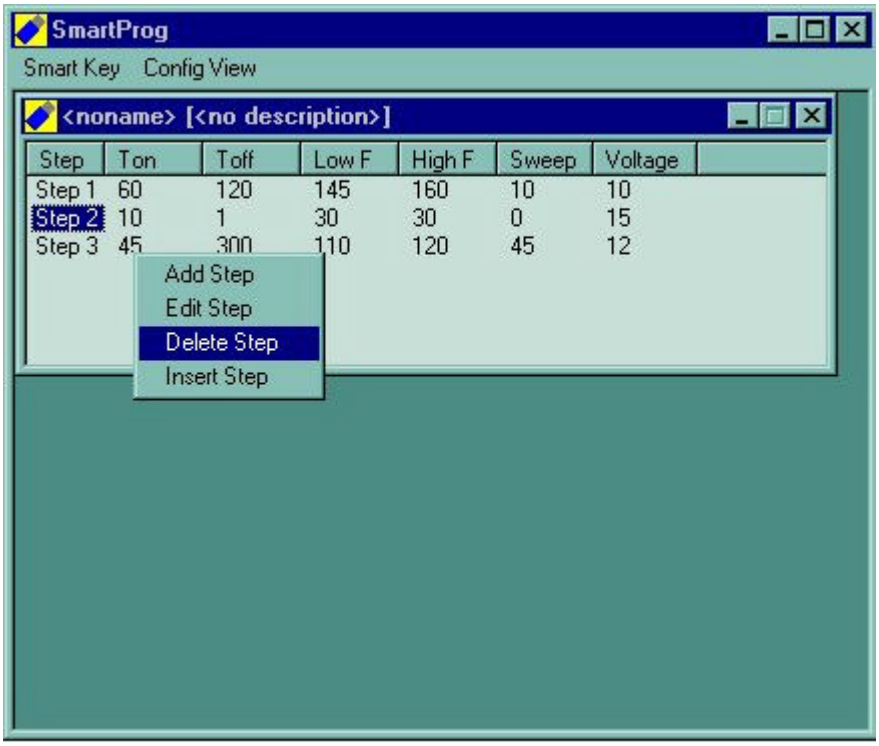

Fig. 16 – Deleting a Step

4.7 Inserting a Step

You can insert a step between 2 already defined steps as follows:

- in the Smart Key Program Window (Fig. 14), click on the step number before which you want to insert the new step. The software will highlight it.
- Right-click to display the step editing sub-menu, then click on *Insert Step*. The Step Definition Window will open, showing no data (as in Fig. 13).
- Fill all the fields with the desired step data. When satisfied with them, click on the *OK* button, or click on the *Abort* button to undo the insertion leaving the Smart Key program untouched.

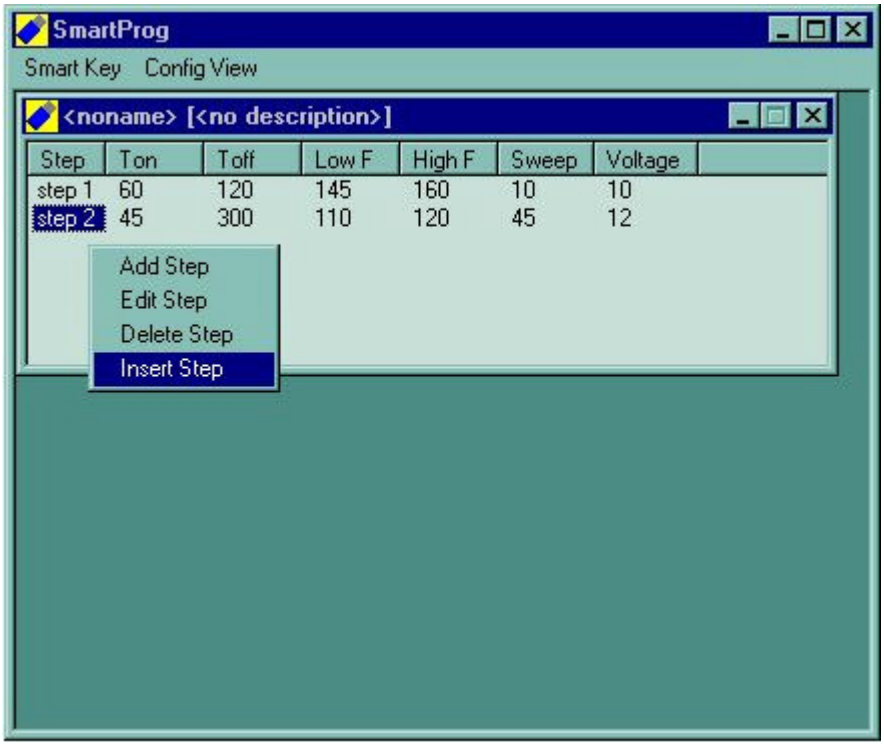

Fig. 17 – Inserting a Step (assuming step #2 has been deleted – as in Fig. 16 - , we will insert it)

Now that the program is defined, you can save it as a file (for later retrieval and use), and/or download it into a Smart Key.

4.8 Saving the Smart Key Program as a File

You can save the Smart Key Program as computer file, for later retrieval and use.
In the Smart Key Program Window, click on then *Smart Key* menu, then click on *Save*. A small sub-menu will be displayed (see Fig. 20): click on *To File* (please note that at this point the "Save To Key" choice is not yet available. It will be available after the "Save To File".
Alternatively, from the Smart Key Program Window, click on the *Smart Key* menu, then click on *Save as*.
In both cases, the software will display the standard Windows file opening dialog

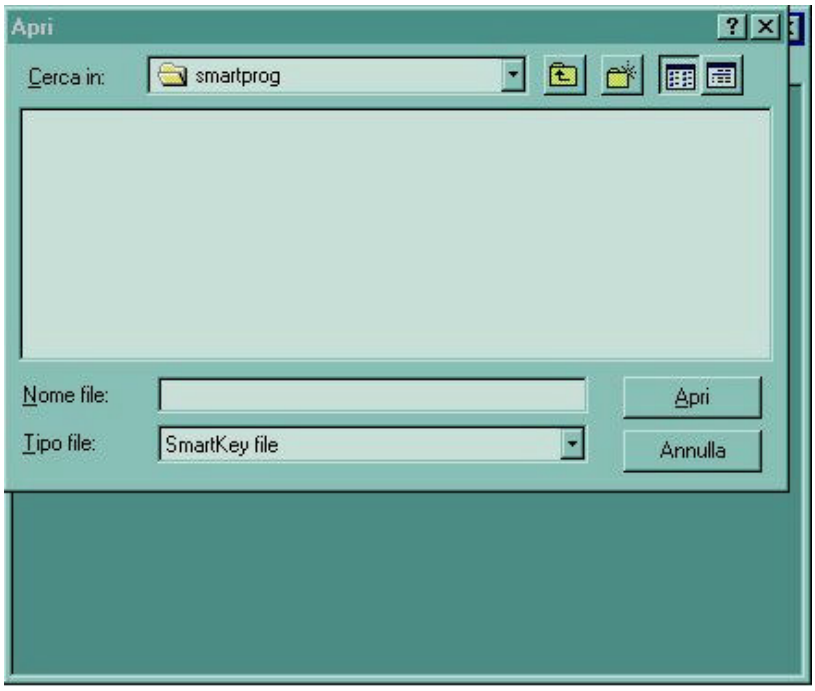

Fig. 18 – Saving a Smart Key Program into a File – no Smart Key file yet (your screen may differ depending on Windows version and language)

Type the file name in the File Name field, then click the *Save* button.
The program will prompt for a short Description of the Smart Key Program to be saved:

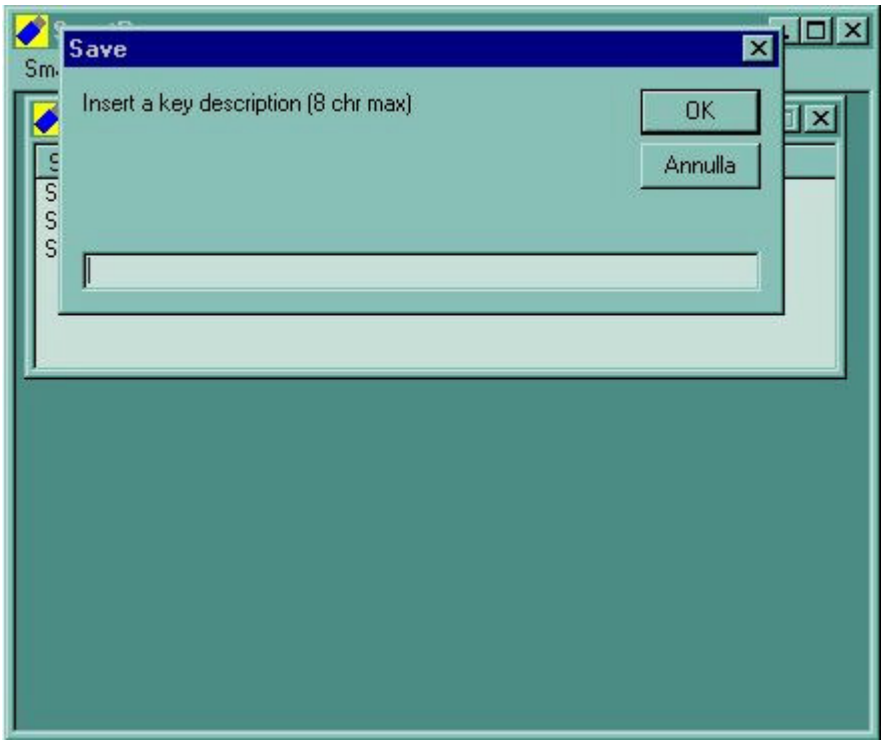

Fig. 19 – Smart Program Description

Type a max 8 character long description for the Smart Key Program, then click on the *OK* button. The software will save the Smart Key Program into the named file, with the standard Smart Key file suffix (".skg").

(You will notice that after this the title bar of the Smart Program Window will display the chosen File Name and Description).

4.9 Downloading the Smart Key Program into a Smart Key

You can download the Smart Key Program into whatever number of Smart Key you want.

From the Smart Key Program window, click on *Smart Key*, then click on *Save*. A small sub-menu will be shown:

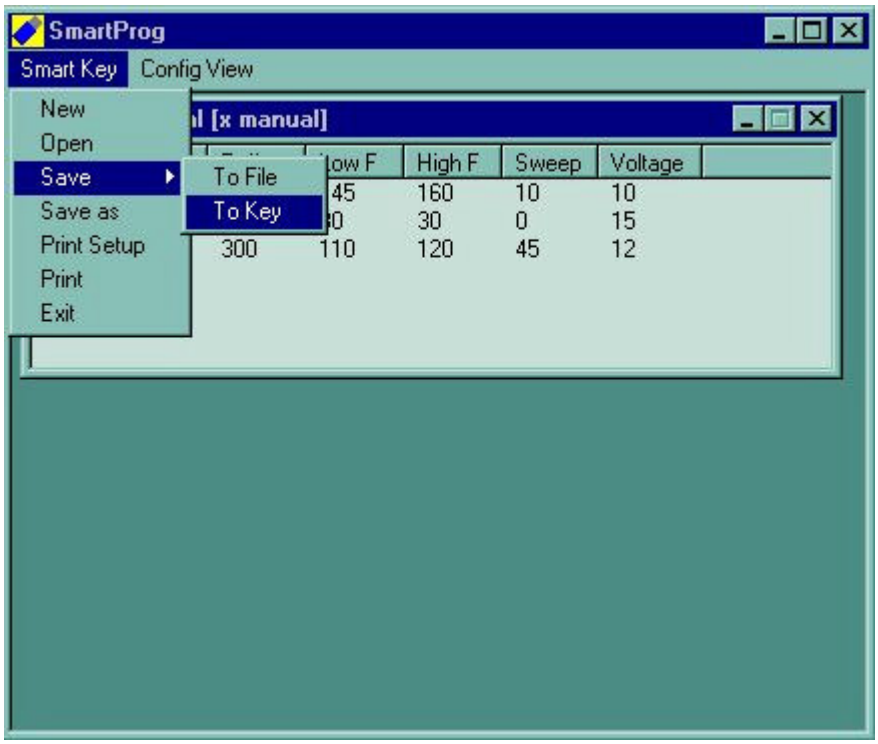

Fig. 20 – Save to Key sub-menu

Click on *To Key*
The program will prompt with:

```
This operation will overwrite the programmer's memory. Proceed ?
```

Click on the *OK* button to write into the Smart Key, or click on the *No* button to return to the Smart Key Program Window.
Assuming you want to proceed and click accordingly, the software will prompt to insert a Smart Key

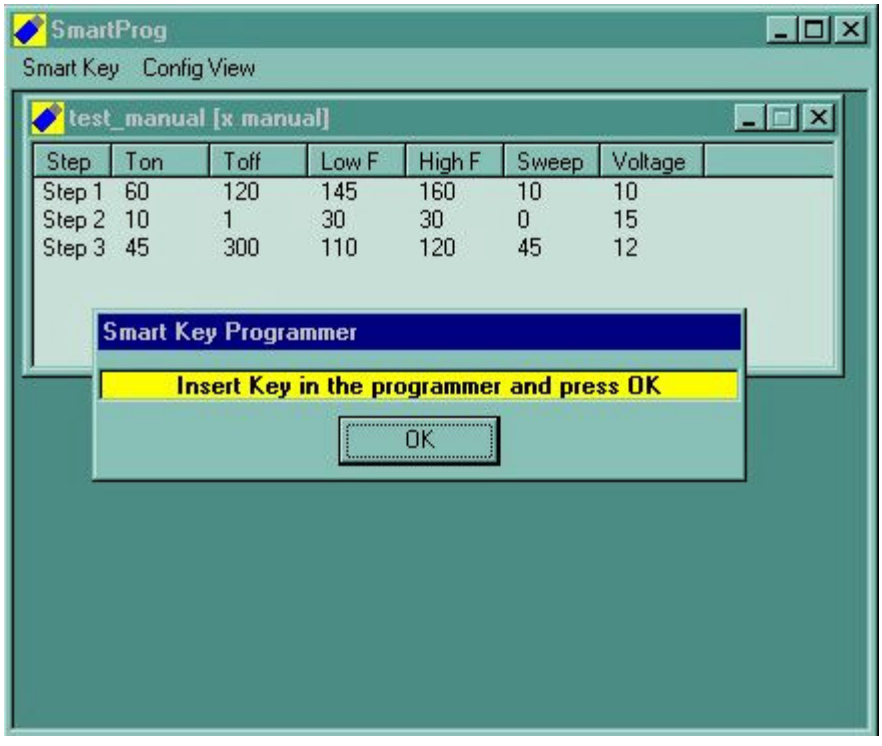

Fig. 21 – "Insert a Smart Key" prompt

Insert a Key in the Smart Key socket (see Fig. 1 and 2 for identifying the socket and for the correct insertion sense), then click on the *OK* button.
The software will then download the Smart Key Program into the Programmer and the Programmer will write it into the Smart Key. During this (small) time the Programmer's led will blink, and the software will display messages reporting what's going on with the system.
When the software displays

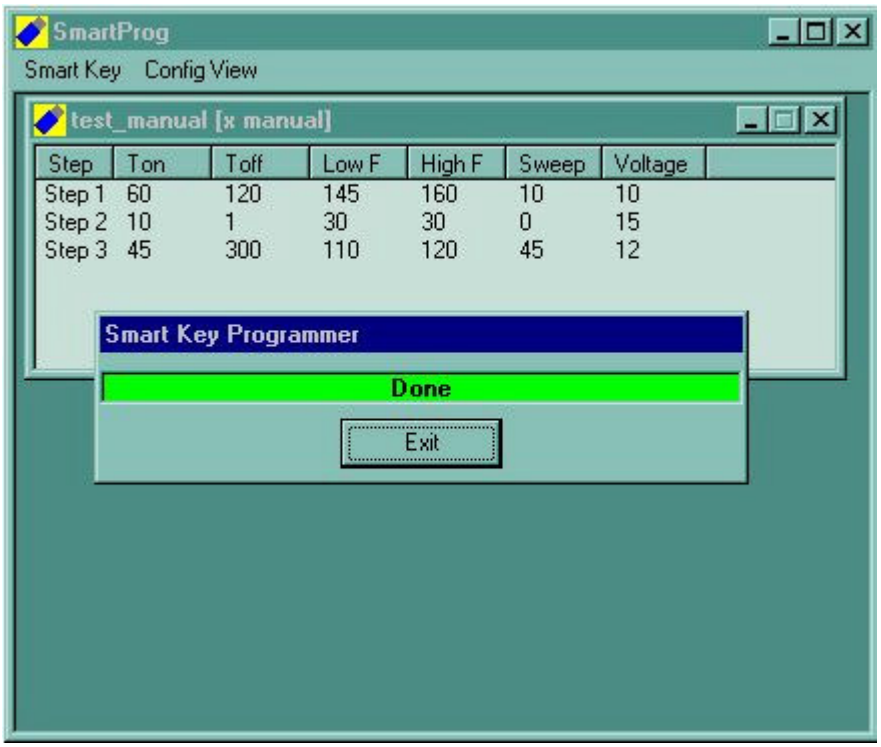

Fig. 22 – Smart Key Program successfully downloaded

Click the *Exit* button then extract the now programmed Smart Key from the Programmer's socket.

You can repeat the operation explained in this chapter for as many Smart Key as you like.

4.10 Retrieving a Smart Key Program from a file

You can retrieve a Smart Key Program from a file.

From the Smart Key menu, click on *Smart Key*, then click on *Open*.

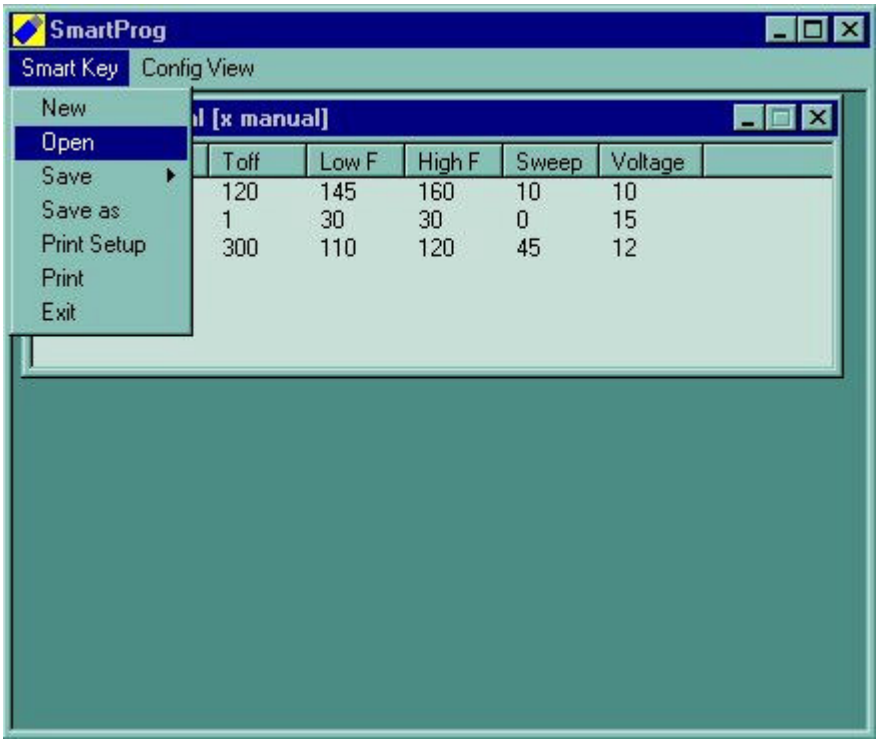

Fig. 23 – Open a Smart Key Program file

The software will display the standard Windows file opening dialog

Fig. 24 – Windows standard file opening dialog (your screen may differ depending on Windows version and language)

Click on the file you want to retrieve, so that its name will appear in the File Name field (in the above figure there is only one Smart Key file, named “test_manual.skg”), then click on the *Open* button.
The software will read the Smart Key Program and display it in a Smart Key Program window, as if you had just typed it.
You can work with this Smart Key Program as explained above, editing, deleting or inserting steps, downloading it into Smart Keys, saving it into a file with the same name or with a new name, printing it.

4.11 Save versus Save as

When a Smart Key Program already has a name, (typically when it is read from a file), the *Save* choice will save it with the same name. Instead, the *Save as* choice will allow to specify a (perhaps new) name for the program file.
When the Smart Key Program does not yet have a name, as in the example above, because we had just typed it, both options amount to the same.

4.12 Print Setup

This choice will call the Windows Printer Services to configure the printer to be used by the software to print the Smart Key Programs. The actual screen content will depend on your available printer[s] and their relative device drivers.
As a general rule, there will be the possibility to choose the printer to be used (if more than one are available), to select the paper orientation and size, and may be other properties like the print quality and darkness of the print.

If the printer has already been configured (maybe because there is a word processor already installed), there is no need to select this choice.

4.13 Print

This choice will print the Smart Key Program on paper. The print will be a copy of the content of the Program Definition Window.

4.14 Exit

Click on this to quit the software. If there is a Smart Key Program that has been modified but not saved, the software will prompt

```
Key changed. Save it ?
```

Click on the *Yes* button to save the Smart Key Program (see chapter 4.8 Saving the Smart Key Program as a File),
click on the *No* button to exit the software without saving the Smart Key Program, or
click on the *Cancel* button to return working with the software

Alternatively, you can quit the software clicking on the “X” button in the upper right corner of the program title bar, in the standard Windows mode. The software behaviour will be the same.

5 Working with more Smart Key Programs

It is possible to work with more than one Smart Key Program. It is better to gain experience with the software before trying this.

You can work with more than one Smart Program, for example by selecting more than once the New or the Open choices from the Smart Key menu. Every time you select one of such choice, a new Smart Key Program window will open, and its title bar will show the pertinent program name. For example, the following

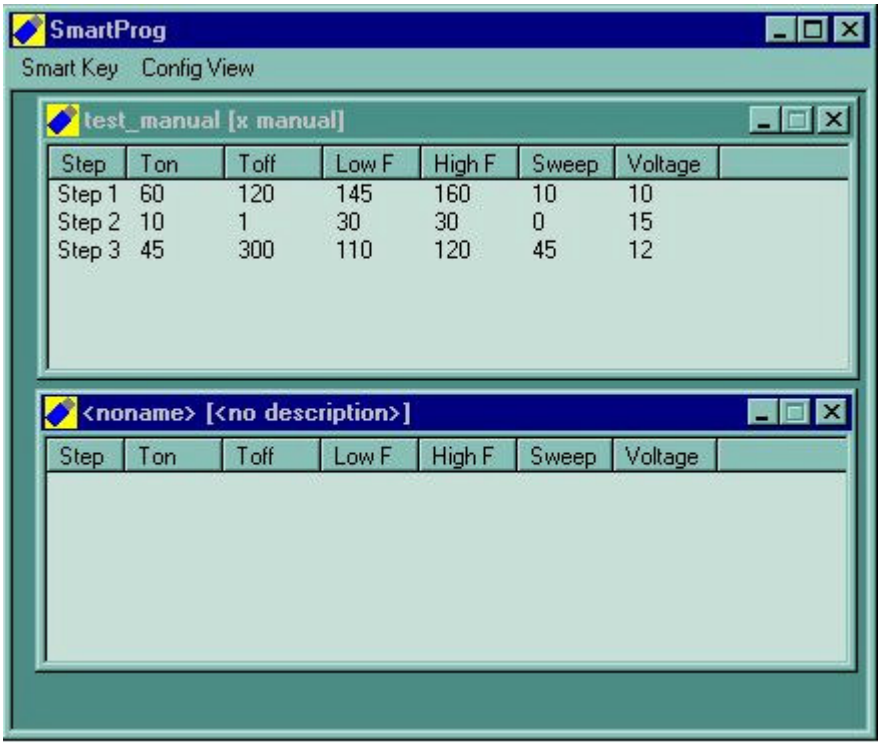

Fig. 25 – Working with more than 1 Smart Key Program

has been obtained by opening the 'test_manual.skg' file then selecting the 'New' choice.

Please notice that only the 'active' window (the window with its title bar highlighted - <noname> [<no description>] in the above figure) will receive commands, the other windows are for reference, but can be activated at will simply clicking in their area or in their title bar).

6 Config View

This choice allows to inspect some aspect of the configuration, without modifying them.

Normally, there is no need to click here.

There are 3 choices, click on one of them to see the pertinent configuration:

- Programmer – the software will show that you are connected with a single type programmer
- Key Editor – the software will show that the Prgdrive key format is used
- Serial Port – the software will show serial port (COM#) that is used.

Click on the OK button to return to the software normal operation.

7 Troubleshooting

- The software starts and displays `Wrong Programmer Id`

  The Smart Key Programmer hardware has been connected with a computer different from the one that has been mated with it. The software cannot be run. Connect the Smart Key Programmer hardware with only the computer which has been mated to it during the 1st software run.

- The software displays the screen of Fig. 7, then displays `Error – Programmer not responding`

  Check that the Smart Key Programmer hardware has been properly connected
  Check which port is used (typically COM5 or COM3 for the USB version and COM1 for the serial version), restart the Smart Key Programmer software and choose the right port when Fig. 7 is redisplayed.

- The software displays `Error – Programmer not responding` without previously displaying the screen of Fig. 7

  Try unconnect the USB cable from the computer, wait some seconds, reconnect the cable then retry running the Smart Key Programmer software. It may need to retry this some times.
  Be sure that the USB drivers have been properly installed – eventually re-install driver by rerunning installation selecting only the *1 Install Driver* button (see chapter 2.1.2, Fig. 5)